

What is claimed is:

1. A high energy solid propellant comprising:
  - (a) an oxidizer comprised of ammonium perchlorate, ammonium nitrate or ammonium dinitramide;
  - (b) a binder comprised of polymeric hydrocarbons or polymers; and
  - (c) a fuel comprised of lithium hexahydridoborane or lithium hexahydridoalane, wherein the fuel is encapsulated or microencapsulated such that the propellant grain is fabricated without diminution of its energetic properties..
2. The high energy solid propellant according to claim 1, wherein the binder is PDCPD (polydicyclopentadiene), polyethylene, polystyrene, or low molecular weight polyethylene.
3. The high energy solid propellant according to claim 1, wherein the fuel is comprised of lithium hexahydridoborane and aluminum, or LHA (lithium hexahydridoalane) and aluminum.
4. The high energy solid propellant according to claim 2, wherein fuel is comprised of lithium hexahydridoborane and aluminum, or LHA (lithium hexahydridoalane) and aluminum.
5. The high energy solid propellant of claim 1, wherein the propellant comprises 60-80 wt% oxidizer, 5-30 wt% fuel, and 5-15 wt% binder.
6. The high energy solid propellant of claim 1, wherein the propellant comprises 65-75 wt% oxidizer, 10-25 wt% fuel, and 10-15 wt% binder.
7. The high energy solid propellant of claim 1, wherein the propellant comprises 70-75 wt% oxidizer, 15-25 wt% fuel, and 12 wt% binder.

8. The high energy solid propellant of claim 1, wherein the entire propellant is encapsulated or microencapsulated such that the propellant grain is fabricated without diminution of its energetic properties.